

Please add new claims 17 - 34 as follows:

17. An apparatus for facilitating enhanced interaction of vapor and liquid passing in counter-current flow through a process tower having a wall, said apparatus comprising:

an outlet weir having a plurality of segments arranged in a multi-chordal configuration;

a downcomer disposed below said outlet weir, said downcomer having a downcomer outlet and a downcomer wall tapering from said outlet weir downwardly towards the wall of said process tower and said downcomer outlet, wherein said downcomer outlet includes a center opening section and opposing edge opening sections, and wherein said opposing edge opening portions are greater than said center opening section; and

a tray having an inlet area disposed below said downcomer outlet and a second tray area.

18. The apparatus according to claim 17, wherein said downcomer wall is a semi-conical wall.

19. The apparatus according to claim 17, further including a support ring supporting said tray, and wherein said inlet area is located above said support ring.

20. The apparatus according to claim 17, wherein said tray further includes an inlet weir separating said inlet area from said second tray area.

21. The apparatus according to claim 20, wherein said inlet weir extends above said downcomer outlet.

22. The apparatus according to claim 20, wherein said tray further includes a plurality of venting chambers disposed on said tray adjacent to said inlet weir and opposite of said inlet area.

23. An apparatus for facilitating enhanced interaction of vapor and liquid passing in counter-current flow through a process tower having a wall, said apparatus comprising:

an outlet weir having an arcuate section extending towards said wall of said tower;

a downcomer disposed below said outlet weir, said downcomer having a downcomer outlet and a downcomer wall tapering from said outlet weir downwardly towards the wall of said process tower and said downcomer outlet, wherein said downcomer outlet has a center opening section and opposing edge opening sections, and wherein said opposing edge opening sections are greater than said center opening section, and

a tray having an inlet area disposed below said downcomer outlet and a second tray area.

24. The apparatus according to claim 23, wherein said arcuate section of said outlet weir is a semi-circular shape extending towards said wall of said process tower.

25. The apparatus according to claim 23, wherein said downcomer wall is a semi-conical wall.

26. The apparatus according to claim 23, further including a support ring supporting said tray, and wherein said inlet area is located above said support ring.

27. The apparatus according to claim 23, wherein said tray further includes an inlet weir separating said inlet area from said second tray area.

28. The apparatus according to claim 27, wherein said inlet weir extends above said downcomer outlet.

29. The apparatus according to claim 27, wherein said tray further includes a plurality of venting chambers disposed on said tray adjacent to said inlet weir and opposite of said inlet area.

30. An apparatus for facilitating enhanced interaction of vapor and liquid passing in counter-current flow through a process tower having a wall, said apparatus comprising:

an outlet weir;

a downcomer disposed below said outlet weir, said downcomer having a downcomer wall tapering from said outlet weir downwardly towards the wall of said process tower and to a discharge plate, wherein said discharge plate includes a center and opposing end portions and a plurality of apertures therethrough, and wherein the size and spacing of said apertures in said discharge plate is such that more liquid flowing through said downcomer flows through the apertures in the end portions of said discharge plate than through the apertures in the center section of the discharge plate; and

a tray having an inlet area disposed below said discharge plate of said downcomer and a second tray area.

31. The apparatus according to claim 30, wherein said downcomer wall is a semi-conical wall.

32. The apparatus according to claim 30, further including a support ring supporting said tray, and wherein said inlet area is located above said support ring.

33. The apparatus according to claim 30, wherein said tray further includes an inlet weir separating said inlet area from said second tray area.

34. The apparatus according to claim 33, wherein said tray further includes a plurality of venting chambers disposed on said tray adjacent to said inlet weir and opposite of said inlet area.

In view of the foregoing amendment, the claims now pending in the application are submitted to be in condition for allowance, and action to that end is respectfully requested. The Applicants respectfully submit that no new matter is introduced by this amendment. If the Examiner believes that the pending claims could be allowed with minor changes, the Examiner is invited to telephone the undersigned to discuss an Examiner's Amendment.

Respectfully submitted,



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